

in diminished numbers, on all sides. At midnight there were only occasional ones, and these chiefly in the west.

At first counting was quite impossible, but at 6.25 I was able to count, in one minute, between the N. and N.W. points, 104 meteors, my daughter counting 60 in the opposite quarter, and another 39 from the radiating point, in the same time (radiates).

At 10 P.M. I counted from that point 20, at 11 P.M. 7, and at midnight two meteors.

I have seen nothing like it since 1866.

Partenkirchen, Bavaria :

5.45 p.m. local time (44 m. fast of Greenwich). Lat. 47°30' N.; long. 11°5' E.

The Meteoric Shower as seen at Clapham on the night of November 27, 1885. By E. J. Spitta.

Observations were commenced at 6.10 P.M., and from that time until the clouds gathered, at 7 P.M., a careful watch was kept, and 660 meteors noted. As a matter of fact, I think the numbers should be 600 for the first 40 minutes, and 60 for the last 10, as the weather became thick at that time, and only the larger meteors could be seen and counted. Doing this, we have an average of about one in every four seconds.

Watch was again kept at 10.15, but few were then seen, and at 10.40 the clouds again gathered, and it commenced to rain.

Nearly all the meteors were small, about the 3rd or 4th magnitude, excepting a few which were larger, about equal to stars of the 1st magnitude, and two especially large ones, which rivalled *Jupiter* at opposition.

Speaking generally, very few left any train or sparks behind them; but, on the other hand, nearly all brightened up considerably before extinction.

With respect to colour: the heads were nearly all of a yellowish-white, but the larger type were pale blue. The two large ones before referred to as being so very bright, exhibited a decided bluish-white colour, like the magnesium balloons. These two left decided trains behind them, which had a tendency to redness, but they did not appear to last very long, although the meteors themselves travelled much slower than the rest.

No sound was heard of any kind during the whole time of observation, although such was carefully listened for.

The generality of the meteors did not last more than a second or a second and a half, but at the time of observation they were falling so quickly that it is difficult to make any definite statement.

Most of them indicated a starting-point somewhere near γ *Andromedæ*, but others a point nearer *Algol*, or 51 *Andromedæ*.

The path described in arc of most of the meteors was very

short; indeed, a great many appeared as if they were coming directly at the observer. But still a great many extended long lengths, some to the south, more to the east, but the most by far towards the north. Of the two large ones before referred to, one passed southwards, the other in a direction north-eastwards.

For the purpose of further investigation, I turned the 10-inch reflector on to a point near γ *Andromedae*, a friend continuing the counting meanwhile, and I was lucky enough to see a small meteor cross the field in a few moments. Its passage appeared extremely rapid. Its colour was bluish-white rather than yellow, and it left not a vestige of a tail or a solitary spark.

The comparison of the shower this year and of that in 1872 may be said to be as follows:—

The meteors are much the same in size; if anything a trifle smaller.

The absence of tails of any great length in either years. The colours exhibited nearly similar.

Neither in this year nor in 1872 did the meteors extend to any great lengths of arc.

The numbers counted about the same, and the shower, comparatively speaking, over by 10.30, or thereabouts.

The radiant point seemed to extend itself towards *Cassiopeia* and *Perseus* as the evening wore on.

Ivy House, Clapham Common, S.W.:
1885, Dec. 10.

Addition to the Ephemeris for Physical Observations of Mars, 1886.
By A. Marth.

The Zero-Meridian, adopted in the ephemeris on p. 29 ff. will pass the centre of the disc of *Mars* at the following Greenwich Mean Times:—

1886 Jan. 7	h m 2 30·8	1886 Jan. 19	h m 10 5·9	1886 Jan. 31	h m 17 33·6
8	3 9·0	20	10 43·5	Feb. 1	18 10·5
9	3 47·1	21	11 21·1	2	18 47·3
10	4 25·2	22	11 58·6	3	19 24·1
11	5 3·2	23	12 36·1	4	20 0·8
12	5 41·2	24	13 13·5	5	20 37·5
13	6 19·2	25	13 50·8	6	21 14·1
14	6 57·1	26	14 28·1	7	21 50·7
15	7 35·0	27	15 5·3	8	22 27·2
16	8 12·8	28	15 42·4	9	23 3·6
17	8 50·6	29	16 19·5	10	23 40·0
18	9 28·3	30	16 56·6	12	0 16·4